The Ohio Naturalist,

PUBLISHED BY

The Biological Club of the Ohio State University.

Volume X. MAY, 1910. No. 7.

TABLE OF CONTENTS.

A NEW SPECIES OF CELITHEMIS (ORDER ODONATA).

E. B. WILLIAMSON.

While calling on Professor Hine at the Ohio State University last autumn he showed me 4 specimens of *Celithemis* collected by himself at Slidell, Louisiana, July 2–6, 1905. The species was unknown to both of us, and he very generously turned the material over to me for study. This study had not progressed far when it became evident that the real difficulty would lie in determining which of two species Kirby had before him when he described his *Celithemis fasciata*, to which species numerous specimens from Ohio and Indiana collected by Kellicott and his students and co-laborers had been referred. In working out the differences between the northern (Ohio and Indiana) specimens and those from Louisiana, however, it became clear that the name *fasciata* would have to go to the southern species, and that the better known northern species required a new name. I informed Professor Hine of this and he kindly requested me to complete the study and send him the paper for the OHIO NATURALIST.

Reasons for assigning Kirby's name *fasciata* to the Louisiana specimens and describing the Ohio and Indiana specimens, formerly called *fasciata*, as a new species, *monomelaena:*

1 and 2. In Kirby's description he says: "Triangle (front wing) crossed by one or two nervures, followed by 4 rows of cells." His figure shows the triangle with 2 crossveins and 4 posttrigonal cells on each side. (It is possible that the venation shown in the figure has one side duplicated on the opposite side by the artist.) Referring now to these characters in the material before me I find that the 4 Louisiana specimens (*fasciata*) have 5 front wings with 2 crossveins and 3 wings with 1 crossvein in the triangle,

while of 16 wings of *monomelaena* examined only a single wing has 2 crossveins, all the others having but 1. Also, 6 wings of *fasciata* have 4 posttrigonal cells, and 2 wings have 5. On the other hand 9 wings of *monomelaena* have but 3 cells, although 7 wings have 4.

3. Kirby's figure shows the first row of cells, proximal to the postanal cell, between A and posterior margin of wing in front wing as 3 cells wide. In the Louisiana specimens this is true for 7 wings, while 1 wing has 2 cells; in 16 wings of *monomelaena* examined these are invariably 2 cells. (Kirby figures the postanal as a single cell. This is undoubtedly an error. My material shows it 2 or 3 celled.)

4. Kirby mentions the enclosed basal pale area in the hind wing as being yellowish or yellow, though his figure does not show this. The accompanying half tones show this character clearly in the Louisiana specimens. It is entirely lacking in *monomelaena*, whence the specific name.

5. In *fasciata* as described and figured the colored area just proximal and posterior to the nodus in the front wing extends posteriorly across Cu_1. This is true of all the Louisiana specimens. In *monomelaena* on the other hand this dark area in its maximum development is limited posteriorly by the median supplement.

So much for the identification of *fasciata*. Other characters point to the specific distinctness of *monomelaena* and *fasciata*, though unfortunately I am unable to find such characters elsewhere than in the wings. Two venational characters are of interest: the number of cells between A_2 and A_3 in the hind wing and the number of cells on the posterior margin of the hind wing from the base of the wing to the anal loop. In both of these characters *fasciata* has a greater number of cells than *monomelaena*, and in both species in the case of the first character the female has more cells than the male, while in the second character the male has more cells than the female. These characters may be tabulated:

Number of cells between A_2 and A_3 in hind wing:

fasciata male, one wing 11, two 12, one 14; average 12.25.
female, three wings 15, one 17; average 15.5.

monomelaena male, three wings 9, two 10; average 9.4.
female, two wings 9, four 10, two 11, one 12, one 13; average 10.5.

Number of cells on posterior margin of hind wing from the base of the wing to the anal loop:

fasciata male, one wing 32, two 34, one 35; average 33.75.
female, two wings 31, two 33; average 32.

monomelaena male, one wing 24, two 25, one 26, one 27; average 25.4.
female, one wing 21, one 23, two 24, one 25, two 26; average 24.14.

Of 8 wings of *fasciata* and 16 wings of *monomelaena* examined all have the last antenodal of the front wing continuous, excepting one wing of each species. All have the triangle of the hind wing free excepting a single wing of *fasciata*, where it is once crossed.

CELITHEMIS MONOMELAENA n. sp.

Celithemis fasciata, Hine, in THE ODONATA OF OHIO, D. S. Kellicott, O. S. U., UNIV. BULL. SERIES 4, No. 5, p. 104, describes the species and records its capture in Summit County, Ohio, at Silver and Summit Lakes, in June and July, June 23rd being the earliest record. Hine, ENT. NEWS, January, 1899, p. 1, describes the female, with figures of wing markings of both sexes, and notes habits and records of captures. Williamson, REPORT STATE GEOLOGIST, INDIANA, 1899, p. 320, describes the species and records it from the following Indiana localities: Goose Lake, Kosciusko County, Round and Shriner Lakes, Whitley County, and Frantz Fishpond, Wells County.

The above literature, with the notes given above and the plates which accompany this paper, sufficiently describes this species. The following references under *fasciata* should be placed under *monomelaena*, I believe.

1. Hagen, PSYCHE, 1890, p. 383, records *fasciata* from Georgia, Florida and Canada. The Canadian specimen is probably *monomelaena*, the other two *fasciata*.

2. Kellicott, PROC. OHIO ACAD. SCI., 1896, p. 28, records the capture of *fasciata* by Dury at Cincinnati and Williamson in Indiana.

3. Kellicott, THE AGR. STUDENT, Columbus, Ohio, Nov., 1897, p. 45, repeats the data in 2.

4. Williamson, REPORT STATE GEOLOGIST, INDIANA, 1897, p. 404, records *fasciata* for Shriner Lake, Whitley County, Indiana.

5. Williamson, ENT. NEWS, 1899, p. 42, notes on pairing of *fasciata* at Round Lake, Whitley County, Indiana, during July, 1898.

6. Hine, PROC. OHIO ACAD. SCI., 1899, p. 67, records *fasciata* from Silver Lake, Akron, Ohio, June 23rd.

7. Osborn and Hine, O. S. U. (OHIO) NATURALIST, 1900, p. 15, record the capture of about 30 specimens at lakes near Kent, Ohio, in the latter half of June.

8. In ENT. NEWS, 1902, p. 298, Mr. E. Daecke's capture of *fasciata* at Lucaston, New Jersey, is recorded.

9. Calvert, ENT. NEWS, 1903, p. 36, records *fasciata* for Lucaston, New Jersey, June 22, July 2, 1900–2, collected by E. Daecke.

10. In ENT. NEWS, 1907, p. 456, Mr. Laurent's capture of *fasciata* at Malaga, New Jersey, July 20, is recorded.

11. Muttkowski, Bull. Wis. Nat. Hist. Soc., Vol. 6, 1908, p. 108, describes *fasciata* and records it from Milwaukee County, Wisconsin.

CELITHEMIS FASCIATA Kirby.

TRANS. ZOOL. SOC. LOND., XII, 1889, p. 326, pl. LII, fig. 2.

As above stated Hagen's reference to *fasciata* from Florida probably refers to this species. In ENT. NEWS, 1906, p. 84. C. S. Brimley records *fasciata* from Lake Ellis, North Carolina, June 22nd. This probably refers to true *fasciata*.

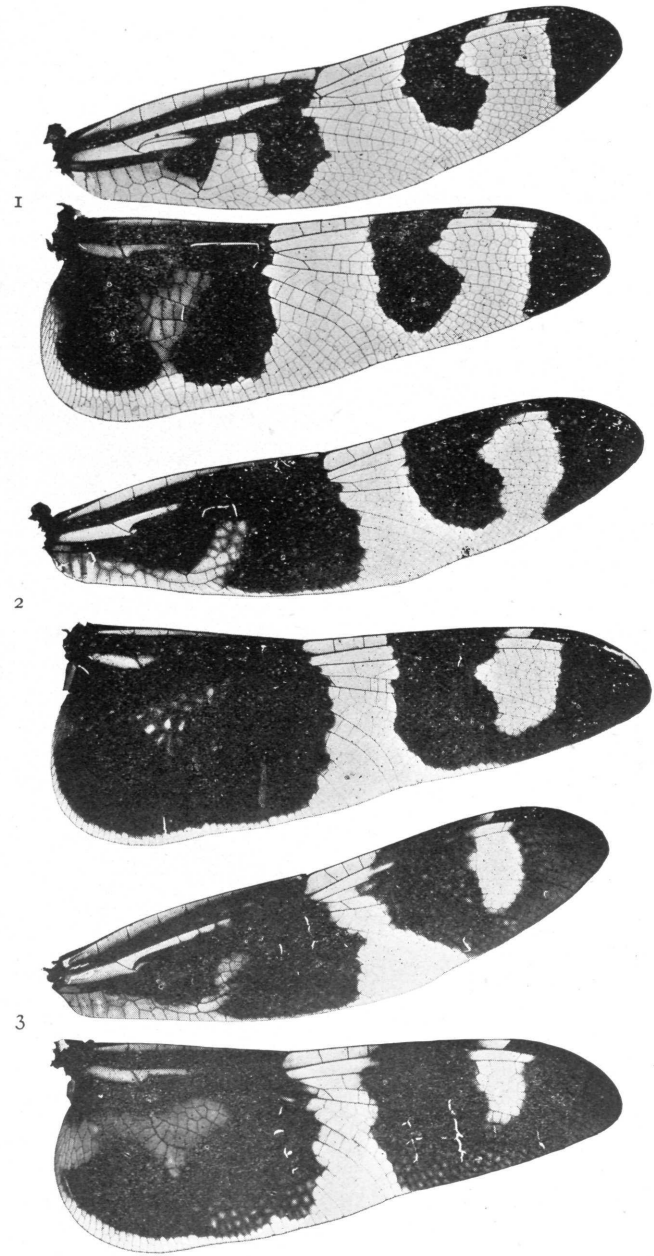
Soon after beginning this study I wrote to Mr. Dury about his Cincinnati record. He sent me a water color sketch of his specimen, taken in 1895. It is certainly *monomelaena*. It was taken at a small lake in Spring Grove Cemetery. Several were seen but only one was captured and he has not seen the species since. He does not know who is responsible for determining his specimen as *fasciata*, but I recall from conversations with Professor Kellicott that he was not the authority, and my Indiana specimens were named *fasciata* for me by Kellicott after he or Hine had seen Dury's specimen bearing this label.

Dury's experience with the species at Cincinnati is similar to mine in Wells County. It was taken at Frantz Fishpond (a deserted gravel pit) in 1898 and again in 1901, but I have been unable to find it there since. I have not seen the species alive since 1904 when it was taken in Steuben County, Indiana.

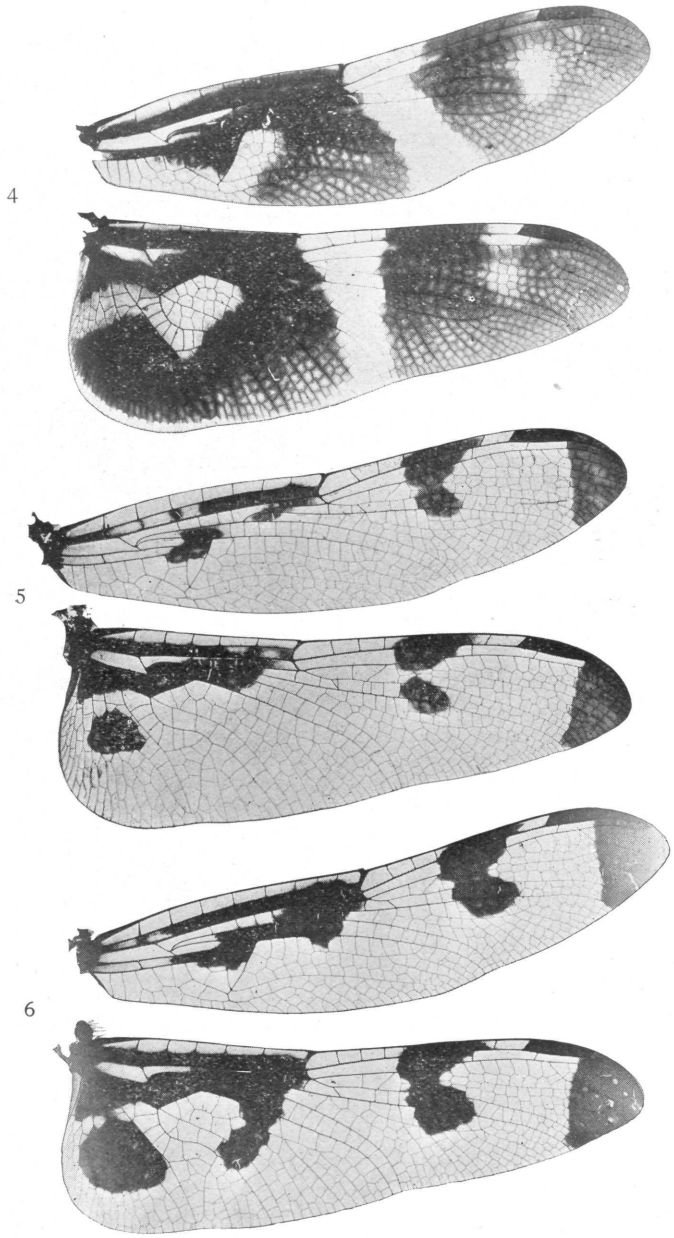
My thanks are due Professor Hine for delegating to me this work in an order of insects in which he himself is greatly interested. Professor J. B. Parker has on this occasion, as on others, given me the benefit of his knowledge of Greek, and the specific name *monomelaena* is of his compounding. The photographs of wings, from which the plates have been made, were taken by Professor Newton Miller, Clark College.

The types of *monomelaena* are a male and female, Whitley County, Indiana, in my collection.

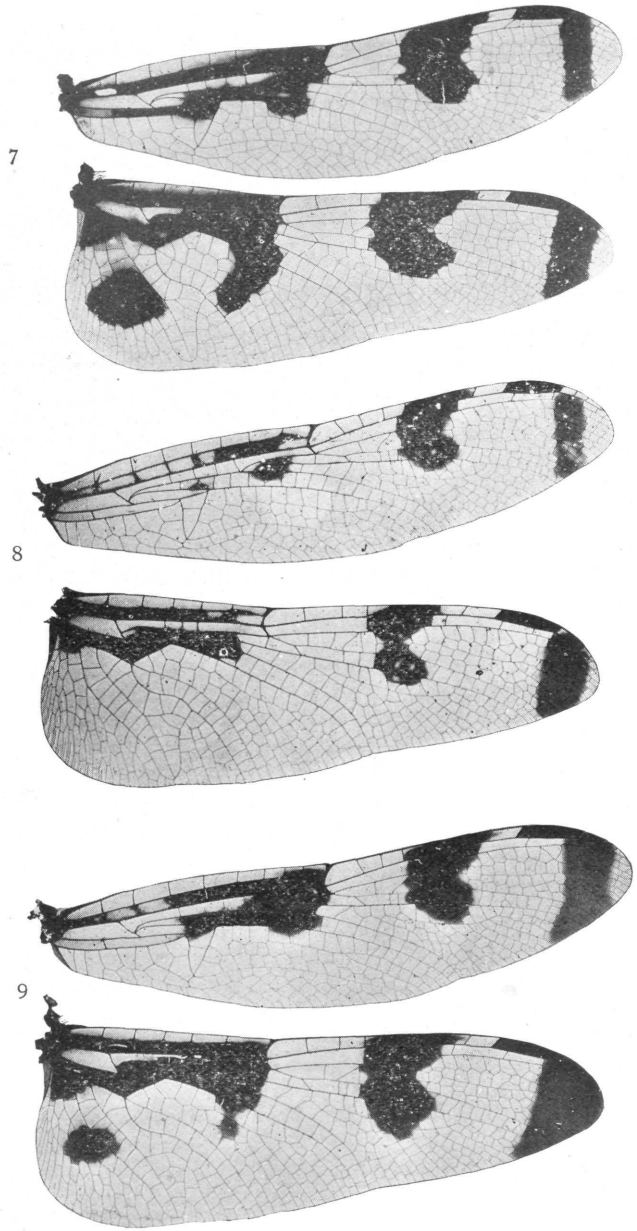
Bluffton, Indiana.



WILLIAMSON on "Celithemis."



WILLIAMSON on "Celithemis."



WILLIAMSON on "Celithemis."

EXPLANATION OF PLATES VI, VII, AND VIII.

Figs. 1, 2, males, 3, 4, females, *Celithemis fasciata* Kirby, all from Slidell, Louisiana, July 2, 1905, J. S. Hine.

Figs. 5, 6, males, 7, 8, 9, females, *Celithemis monomelaena* new species, all from Whitley County, Indiana, excepting 6 from Kent, Ohio, J. S. Hine. 7 is the type ♀ of *monomelaena*. 5, 8 and 9 are teneral specimens.

Wings of *monomelaena* have been selected to show the extremes of variation in wing markings. Notice wing apices in 7, 8 and 9, and notice hind wings in these 3 figures showing that a great development of one colored area is not necessarily associated with other greatly developed areas in the same wing. In Figures 1 and 2 the enclosed pale basal area in the hind wing is open to the wing border proximally as in Figures 3 and 4, but the orange color of the pale area is so intense as to obscure this in the photographs. Notice that in *fasciata* this pale area is always open to the border proximally, and is closed or tends to close across the posterior end of the anal loop (nearly closed in Figure 1, completely closed in 2, 3 and 4); *monomelaena*, on the other hand, tends to close proximally (see Fig. 6) and remains open posteriorly across the anal loop. There is in the behavior of these colored parts two distinct tendencies in the two species (compare these areas in Figures 4 and 6).